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hap

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also spelled ***haptene*** small molecule that stimulates the producti of antibody molecules only when conjugated to a larger molecule called a carrier molecule.

The term ***hapten*** is derived from the Greek *haptein*, meaning "tc fasten." **Haptens** can become tightly fastened to a carrier molec most often a protein , by a covalent bond. The **hapten**-carrier complex stimulates the production of antibodies, which the unbo **hapten** cannot do, and becomes immunogenic (capable of elicitir immune response). The **hapten** then reacts specifically with the antibodies generated against it to produce an immune or allergic response. Thus, although the **hapten** cannot elicit an antibody response on its own, it can bind with antibodies and act as an antigen. In the early part of the 20th century, immunologist Karl Landsteiner exploited the antigenic quality of synthetic **haptens** study the highly specific way in which antibodies bind to antigens

Many drugs that cause allergic reactions, such as penicillin , act **haptens**. When injected or ingested, penicillin reacts chemically proteins in the body to form a **hapten**-carrier complex that can l to the life-threatening syndrome called anaphylaxis . Other **hapt** include synthetic substances, such as the organic compounds ben arsonate or trinitrophenol, and naturally occurring polysaccharid such as lactose. Researchers have used **haptens** to construct synthetic vaccines to immunize people against various infectious organisms.

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